WHAT IS CLAIMED IS:

1.   A method for policing one or more flows of a data stream of packets associated with differing transmission protocols, comprising:

determining at least one current bandwidth capacity level for the flow;

ascertaining a packet protocol associated with a packet of the flow;

identifying a packet parameter in the packet indicative of the bandwidth consumption of the packet;

converting the packet parameter to a predetermined format if the packet is not associated with a predetermined packet protocol; and

performing a common bandwidth capacity test as a function of the packet parameter and the current bandwidth capacity level to determine whether the packet is conforming.

2.   The method as in Claim 1, further comprising effecting no conversion for packets already associated with the predetermined packet format.

3.   The method as in Claim 1, further comprising policing a plurality of the flows of the data stream.

4.   The method as in Claim 3, wherein policing a plurality of the flows of the data stream comprises performing the policing on a flow-by-flow basis.

5.   The method as in Claim 1, wherein determining the current bandwidth capacity level comprises calculating an available bandwidth capacity based on a committed quality of service rate.

6.   The method as in Claim 1, wherein determining the current bandwidth capacity level comprises calculating an available bandwidth capacity based on a peak quality of service rate.

1   7.   The method as in Claim 1, wherein determining the current bandwidth

2   capacity level comprises calculating a credit token level accumulated for a credit

3   bucket counter.

1   8.   The method as in Claim 7, wherein calculating a credit token level

2   comprises calculating a committed rate credit token level accumulated for a

3   committed rate credit bucket counter.

1   9.   The method as in Claim 7, wherein calculating a credit token level

2   comprises calculating a peak rate credit token level accumulated for a peak rate

3   credit bucket counter.

1   10.   The method as in Claim 1, wherein determining the current bandwidth

2   capacity level comprises determining a plurality of current bandwidth capacity levels

3   for the flow.

1   11.   The method as in Claim 10, wherein plurality comprises at least a

2   committed capacity level and a peak capacity level.

1   12.   The method as in Claim 1, wherein ascertaining the packet protocol

2   comprises analyzing a packet header for header information identifying the packet

3   protocol.

1   13.   The method as in Claim 12, wherein analyzing the packet comprises

2   parsing the packet header and searching for at least one header field identifying the

3   packet as a FAST packet.

1   14.   The method as in Claim 1, wherein identifying a packet parameter

2   comprises identifying the number of data units in the packet.

1   15.   The method as in Claim 14, wherein converting the packet parameter

2   to a predetermined format comprises converting the number of data units to a

3   number of bytes.

1   16.   The method as in Claim 15, wherein converting the number of data

2   units to a number of bytes comprises calculating a product of the number of data

3   units and a number of bytes per data unit.

1   17.   The method as in Claim 16, wherein calculating the product comprises

2   calculating the product of the number of ATM cells and the number of bytes of

3   payload in an ATM cell.

1   18.   The method as in Claim 1, wherein converting comprises converting a

2   number of first data units of the packet parameter to a number of second data units

3   corresponding to the predetermined packet protocol.

1   19.   The method as in Claim 1, wherein performing a common bandwidth

2   capacity test comprises comparing a packet bandwidth consumption value

3   proportional to the packet parameter with the current bandwidth capacity level.

1   20.   The method as in Claim 1, wherein performing a common bandwidth

2   capacity test comprises comparing a packet bandwidth consumption value

3   proportional to the converted packet parameter with the current bandwidth capacity

4   level.

1   21.   The method as in Claim 1, wherein the common bandwidth capacity

2   test is a single shared test imposed on all packets, regardless of the original protocol

3   of the packet.

1   22.   The method as in Claim 1, wherein performing a common bandwidth

2   capacity test further comprises marking the packets in accordance with color-based

3   marking.

1   23. A packet policing system for providing multi-protocol policing of

2 packets of a data stream, comprising:

3   a classifier to receive and parse the data stream into a plurality of

4 multi-protocol traffic flows; and

5   a policing processor coupled to the classifier to receive each of the

6 traffic flows and configured to convert each of the packets into a predetermined

7 format, wherein the policing processor is further configured to perform a shared

8 bandwidth capacity test to determine packet conformance for each of the packets,

9 regardless with their original protocol affiliation.

1   24. The packet policing system as in Claim 23, further comprising a

2 memory to store a current bandwidth capacity level for each of the multi-protocol

3 traffic flows, wherein the shared bandwidth capacity test is a function of the current

4 bandwidth capacity level.

1   25. The packet policing system as in Claim 23, further comprising an

2 editing module coupled to the policing processor to modify each of the packets with

3 the packet conformance provided by the policing processor.

1   26. The packet policing system as in Claim 25, further comprising a packet

2 drop module coupled to receive the modified packets from the editing module, and

3 to accept or discard each of the modified packets based on the packet

4 conformance.

1   27. A packet policing system for policing one or more flows of a data

2 stream of packets associated with differing transmission protocols, comprising:

3   means for determining at least one current bandwidth capacity level for

4 the flow;

5   means for ascertaining a packet protocol associated with a packet of

6 the flow;

7   means for identifying a packet parameter in the packet indicative of the

8 bandwidth consumption of the packet;

9   means for converting the packet parameter to a predetermined format

10   if the packet is not associated with a predetermined packet protocol; and

11   means for performing a common bandwidth capacity test as a function

12   of the packet parameter and the current bandwidth capacity level to determine

13   whether the packet is conforming.

1   28.   A method for policing bandwidth conformance of one or more flows of

2   a data stream including packets associated with a plurality of transmission protocols,

3   the method comprising:

4   determining at least one current bandwidth capacity level for the flow;

5   ascertaining a packet protocol associated with each packet of the flow;

6   identifying a packet parameter in each of the packets indicative of the

7   bandwidth consumption of the respective packet;

8   converting the packet parameter to a predetermined format for the

9   packets that do not originally correspond to a predetermined packet protocol;

10   preserving the packet parameter for the packets corresponding to the

11   predetermined packet protocol; and

12   subjecting the packets of each packet protocol to a single bandwidth

13   capacity test, wherein the capacity test determines whether the packet is conforming

14   as a function of the packet parameter and the current bandwidth capacity level,

15   regardless of the packet's original packet protocol association.

1   29.   The method as in Claim 28, further comprising performing the policing

2   on a flow-by-flow basis.

1   30.   The method as in Claim 28, wherein preserving the packet parameter

2   comprises for the packets corresponding to the predetermined packet protocol

3   comprises utilizing the packet parameter without conversion.

1   31.   The method as in Claim 28, wherein identifying a packet parameter

2   comprises identifying a number of data units in the packet.

1   32.   The method as in Claim 31, wherein converting the packet parameter
2   comprises converting the number of data units to a number of bytes.

1   33.   The method as in Claim 32, wherein converting the number of data
2   units to a number of bytes comprises calculating a product of the number of data
3   units times a number of bytes per data unit.

1   34.   The method as in Claim 33, wherein calculating a product comprises
2   calculating the product of the number of ATM cells in the packet and the number of
3   bytes of payload in an ATM cell.

1   35.   The method as in Claim 28, wherein converting the packet parameter
2   comprises converting a number of first data units of the packet parameter to a
3   number of second data units corresponding to the predetermined packet protocol.

1   36.   The method as in Claim 28, wherein subjecting the packets of each
2   packet protocol to a single bandwidth capacity test comprises comparing a packet
3   bandwidth consumption value proportional to the packet parameter with the current
4   bandwidth capacity level.

1   37.   The method as in Claim 28, wherein subjecting the packets of each
2   packet protocol to a single bandwidth capacity test comprises comparing a packet
3   bandwidth consumption value proportional to the converted packet parameter with
4   the current bandwidth capacity level.

1   38.   The method as in Claim 28, further comprising marking the packets in
2   accordance with color-based marking.

1   39.   A computer-readable medium having computer-executable instructions
2   for policing one or more flows of a data stream of packets associated with differing
3   transmission protocols, the computer-executable instructions performing steps
4   comprising:

5   determining at least one current bandwidth capacity level for the flow;

6   ascertaining a packet protocol associated with a packet of the flow;

7   identifying a packet parameter in the packet indicative of the

8   bandwidth consumption of the packet;

9   converting the packet parameter to a predetermined format if the

10   packet is not associated with a predetermined packet protocol; and

11   performing a common bandwidth capacity test as a function of the

12   packet parameter and the current bandwidth capacity level to determine whether the

13   packet is conforming.